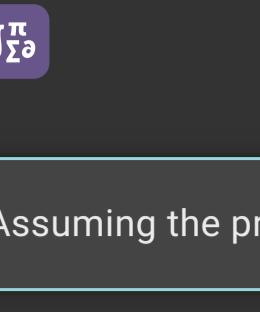


Step-by-Step Solutions

with Pro

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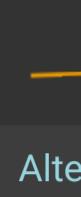
STEP 1
Simplify the following:
 $x^{\frac{3}{2} \log(x^x)}$ Answer:
 $(x-1)(x-2)$

FROM THE MAKERS OF WOLFRAM LANGUAGE AND MATHEMATICA

WolframAlpha

$$\sqrt[3]{x^{\sqrt[3]{\log(x^x)}}}$$

x =

 $\int \frac{d}{dx}$

★

√

∂f

(x)

√v

aω

...

+ Assuming the principal root

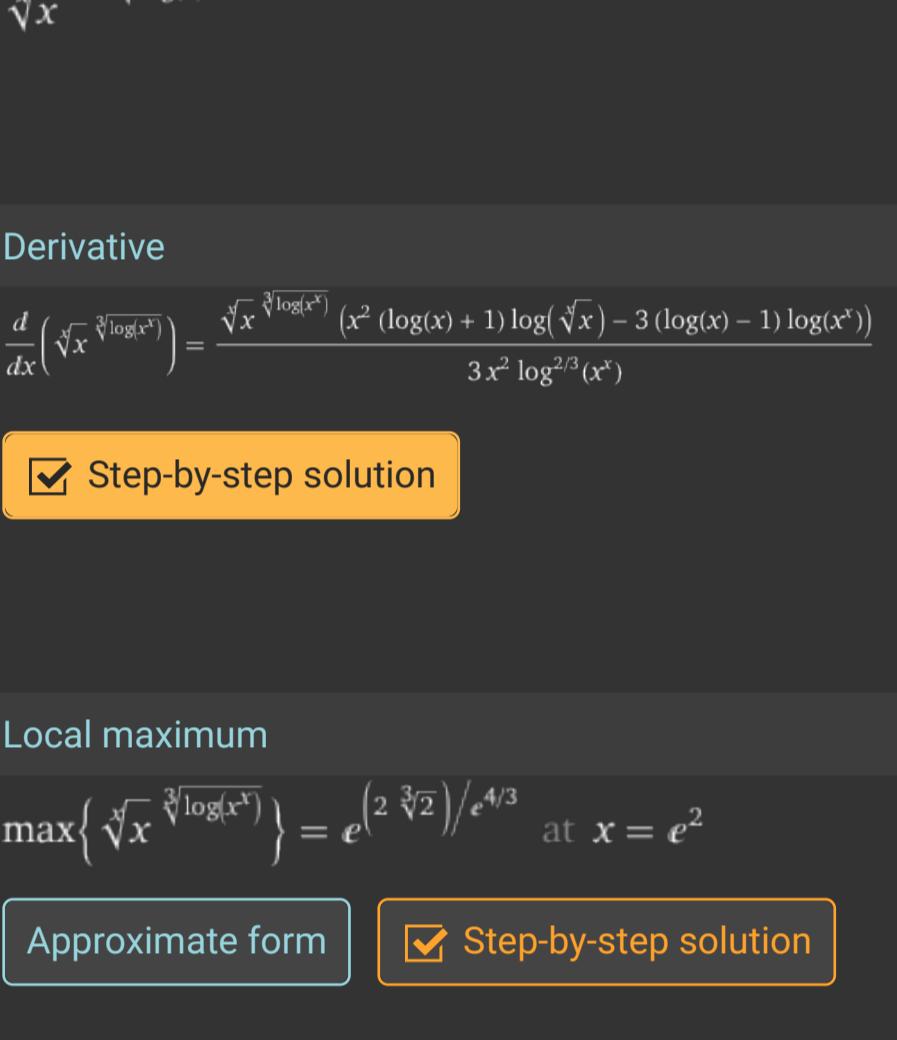
Input

$$\sqrt[3]{x^{\sqrt[3]{\log(x^x)}}}$$

⚙

i

Plot

Alternate form assuming $x > 0$

$$e^{\log^{4/3}(x)/x^{2/3}}$$

⚙

$$x^{\sqrt[3]{\log(x)}/x^{2/3}}$$

⚙

i

Expanded logarithmic form

$$x^{\sqrt[3]{\log(x)}/x}$$

⚙

 Step-by-step solution

i

Alternate form assuming x is positive

$$x^{\log(x)/(x \log(x))^{2/3}}$$

⚙

i

Roots

(no roots exist)

⚙

 Step-by-step solution

i

Property as a real function

Domain

$$\{x \in \mathbb{R} : \left(x = \frac{1}{n} \text{ and } n + 2 \leq 0 \text{ and } n \in \mathbb{Z} \right) \text{ or } x > 0\}$$

⚙

i

Series expansion at $x=0$

$$\sqrt[3]{x^{\sqrt[3]{\log(x^x)}}}$$

⚙

i

Derivative

$$\frac{d}{dx} \left(\sqrt[3]{x^{\sqrt[3]{\log(x^x)}}} \right) = \frac{\sqrt[3]{x^{\sqrt[3]{\log(x^x)}}} (x^2 (\log(x) + 1) \log(\sqrt[3]{x}) - 3 (\log(x) - 1) \log(x^x))}{3 x^2 \log^{2/3}(x^x)}$$

⚙

i

Local maximum

$$\max \left\{ \sqrt[3]{x^{\sqrt[3]{\log(x^x)}}} \right\} = e^{\left(2 \sqrt[3]{2} \right) / e^{4/3}} \text{ at } x = e^{\left(2 \sqrt[3]{2} \right) / e^{4/3}}$$

⚙

i

Approximate form

 Step-by-step solution

i

Definite integral

$$\int_0^1 \sqrt[3]{x^{\sqrt[3]{\log(x^x)}}} dx \approx$$

i

0.414219696388197427885289168225467994202204362419894233610072...

5876313201767881513429696909005039836388 -

0.1751986070083031399861124712428677667846538740699919262173...

022313421157205650738895464962750935798725 i...

⚙

Less

i

Standard computation time exceeded...

Try again with Pro computation time

Related Queries:

series of $(x^{1/x})^{\log(x^x)^{1/3}}$ at $x = \pi$

=

 $(x^{1/x})^{\log(x^x)^{1/3}} > 0$

=

intercepts $(x^{1/x})^{\log(x^x)^{1/3}}$

=

domain and range $(x^{1/x})^{\log(x^x)^{1/3}}$

=

 $(x^{1/x})^{\log_{10}(x^x)^{1/3}}$

=

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